M/023/004

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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April 4, 1996

G. Duane Crutchfield
Ash Grove Cement Company
P.O. Box 51
Nephi, Utah 84648

Re: Second Review, Notice of Intention to Revise Mining Operations, Ash Grove Cement Company, Leamington Plant, M/023/004, Juab County, Utah

Dear Mr. Crutchfield:

The Division has completed its evaluation of your latest response (received January 18, 1996) to our June 8, 1995 deficiency review letter pertaining to Ash Grove's Notice of Intention to Revise Large Mining Operations for the Leamington Plant. After reviewing the latest submittal, the Division has a number of technical concerns which still need to be addressed before we can proceed to issue our tentative approval.

As you know, on March 1, 1996, Mr. Andrew Robinson of your staff came into our office to discuss the status of our review of your latest submission. During our meeting we expressed an overall concern that we apparently are not effectively communicating our technical concerns to you. We recognize that this must be extremely frustrating to you, as it is to us. Mr. Robinson explained Ash Grove's urgent need of a timely response and asked if we would simply pencil in marginal notes on our last review letter to expedite our response. We considered this request, but rejected it because in our opinion this would only increase the likelihood of continued miscommunication. Therefore, we have chosen a slightly different format (albeit more lengthly) to try and better communicate our needs.

Our review comments are listed under the applicable Minerals Rule heading. We have included the comments from our previous review letter to allow for an easier interpretation of adequacy and completeness. This has made the review document longer, but it keeps all the information in one place. Please provide a letter responding to those comments listed below which are still unresolved. *All new comments are shown below in redline print.* Please format your response letter in a similar fashion using the appropriate rule headings and in the order used in this letter. If possible, we also request that you please provide the information contained in your response letter in a separate format, which can be easily inserted into your plan as replacement pages.

Ideally, the finished plan would be a volume(s) which contains sections describing the various aspects of the mining and reclamation plan, rather than a series of letters between the Division and Ash Grove. Ash Grove's initial revision submission was formatted in such a manner, although the information it contained was deficient. As discussed in our meetings early in this permit revision process, it is not our intent to require Ash Grove to re-permit the entire site. Our goal is to have one permit which contains sufficient detailed descriptions of the approved mining and reclamation plan for the existing mine features/facilities and the proposed features.

R647-4-105 - Maps, Drawings & Photographs

105.1 Topographic base map, boundaries, pre-act disturbance

This submission did not clearly identify a "Base Map". The map submitted which comes closest to being a base map would be drawing #6035, "1" = 400'-0". This map does not contain property boundary or surface ownership information. This drawing has a date of 12/10/79. Does this drawing accurately present the current surface facilities and mine disturbances? Please provide a base map which includes the items listed under section R647-4-105.1. Please include private and federal land ownership boundaries and county boundaries on the base map. Existing permit boundaries, disturbed area boundaries, and proposed permit boundaries should also be included on the base map. At least one township, range and section point of reference should be included on the base map and surface facilities map. These boundaries should be included on the surface facilities map.

A new map titled "Revised Base Map" contained in Appendix B was provided in this latest response. The new map appears to be a "negative" image of an ortho photographic projection. The negative image makes it difficult to identify landform features in the photograph. The negative effect also reduces the overall clarity of the information contained on the map. The new map does include property boundaries and section markers. The map does not clearly show: streams, springs or other bodies of water, roads, buildings, transmission lines, water wells or other existing surface or subsurface facilities within 500 feet of the proposed mining operations, or the existing or proposed access routes. AAG

The MR-LMO form refers the reader to drawing AG-01 under section R647-4-105. This drawing does not completely satisfy section 1 or section 2 of this rule heading. (AAG)

The map submitted as "Ash grove Cement West Leamington Quarry" is useful to show proposed disturbance and existing disturbance. The copy submitted to the Division is very difficult to read/interpret. Please provide another copy with appropriate legend and bolder lines or cross-hatching differentiating between the various treatments. Post mining drainage, etc. could also be included on that map. (TM)

The operator's response to this request was a new map titled "Proposed Operations" contained in appendix B. The Division requested another copy of the original map with an appropriate legend, some sort of cross-hatching, or bolder lines differentiating treatments and a delineation of post mining drainage. The new map submitted does not clearly show the post mining drainage. The Division requested that a similar (or the same) map be provided, to show the required information, with an appropriate interpretive legend included. The operator submitted a totally new map with different information. TM

The Reclamation Treatment's map does not provide the information requested and is more difficult to read. The operator must provide a plate/map which shows the post mining topography with drainage features clearly identified. Please refer to additional comments under section 105.3.15 on post mining drainage for a more detailed explanation. TM

105.2 Surface facilities map

This submission did not contain a current map of the surface facilities. The reader is referred to the existing permit, however, the 1979 map of surface facilities does not accurately depict the current facilities. The borders for the Shale Placement areas, current mining limits, and proposed mining limits on Drawing AG-01 are difficult to see. Please make these border more distinct by increasing their line width or using other means.

Permit borders shown on the "Proposed Operations Map" drawing #6056 received December 15, 1979 were superimposed by the Division on drawing AG-01 using a light table and significant topographic features to match with. The border for the Limestone Quarry Area on the 1979 map does not match the border shown for the current mining permit limits on the 1995 drawing. The 1995 drawing does not include the 1979 Waste Disposal Area or Quartzite Quarry. Please modify drawing AG-01 to include: roads, a township-range-section marker for reference, drainage control structures, and other pertinent features as listed under this rule section. (AAG)

Ash Grove's response refers to the new drawing "Proposed Operations" in response to this comment. This map does provide disturbed area boundaries for surface facilities and proposed mining and waste areas, however, it does not include all the features required by R647-4-105.2 for a surface facilities map. Specifically, the surface facilities map needs to include proposed surface facilities (buildings, stationary mining/processing equipment, roads, utilities, power lines, proposed drainage control structures, topsoil storage areas, tailings or processed waste facilities, and wastewater discharge treatment and containment facilities. Disposal areas for overburden (shale placement areas) are shown in this drawing. AAG

105.3 Drawings or Cross Sections (slopes, roads, pads, etc.):

105.3.12 - It is unclear from this submission whether any roads, pads, or other earthen structures will remain as part of the postmining use. If any of these features

are to remain a cross sectional drawing of their configuration after reclamation will need to be provided. (AAG)

Ash Grove indicates that all roads, pads, or other earthen structures currently used will be reclaimed. All surface water diversion structures (other than culverts) or sediment ponds are proposed to remain unreclaimed. The features which are proposed to remain will need to be included and clearly identified on the reclamation treatments map. AAG

105.3.13 - It is unclear from this submission whether any water impounding structures with embankments greater than 20 feet in height or greater than 20 acre feet in storage capacity will remain as part of the postmining use. If any of these features are to remain a cross sectional drawing of their configuration after reclamation will need to be provided. (AAG)

Ash Grove proposes to leave all sediment ponds and diversionary structures as constructed, but reclaim them by scarifying and planting proposed seed mixtures. These features will need to be identified on the reclamation treatments map as receiving revegetation treatments. Any impounding features which are proposed to remain will need to be described in a variance request. AAG

105.3.14 - The submission did not contain maps identifying surface areas which will be disturbed but not reclaimed. The absence of such drawings would imply that all disturbed areas will be reclaimed. If this is not the case please identify these areas or features on the appropriate drawing. (AAG)

Ash Grove's response infers that the disturbed areas which are proposed to be unreclaimed are the quarry highwalls and bases of quarries. The Revised Base Map includes four areas color coded as having existing highwall slopes at near 90 degrees, however, the Reclamation Treatments map includes these areas within the reclamation treatments area of quarry mining operations. The maps will need to be revised to agree with one another on this issue. AAG

105.3.15 - The application lacks any specific information on postmining drainage. It is appropriate that the reclamation plan contain descriptions of drainage patterns following mining. There will be large pad areas left with no apparent provisions for post mining drainage routing (i.e. channel construction, etc.). Please discuss and show your intentions for post-mining drainage configurations. The major waste area proposed is a valley fill and as such, drainage will probably have to be routed along one side of the fill and down the face. Please describe how this will be accomplished and how the channel will be protected. (TM)

The latest response references figures included in Appendix C showing the ponds as constructed in an operational mode, and this includes such things as in place culverts. The response should have referenced post-mining figures showing post-mining ponds without culverts, etc. It has been stated that these structures are to be modified following mining. This includes statements regarding deleting access, culverts, and non-essential riprap. The response also states structures will be left in a stable condition. This is appropriate and meets the requirements of the rules, but there still remains

conflicting information in the plan regarding reference to operational structures in Appendix C which must be cleaned up. TM

The operator's response also contains a comment about the large quarry pad draining at a 2% slope back toward the highwall. The post-mining topography as shown on drawing No. 8-2770-1 appears to be a reproduction of the undisturbed drainage prior to mining. The post mining drainage may drain in a similar fashion, but a drawing of this scale does not clearly identify the drainage from the waste areas, to the pits or highwalls, or the direction of drainage from the facility areas following mining. Therefore, please identify, on a clearer post-mining topography map, how each area will drain and describe where variances would be requested for impounding structures that will not be self-draining upon final reclamation (possibly, highwall base/pit areas, etc.). We currently do not have a figure that clearly shows the post-mining topography and the location of the self-draining impoundments which will be left. Drawing 8-2770-2 shows the location of impoundments during operation. The legend on the latest Reclamation Treatments Map provides highlighted colors for Drainage Structures and Quarry Perimeter. The highlighted drainage structures are unclear and do not show all impoundments or the final topography. Please provide a revised post-mining topography figure which shows the location of the impoundments following mining operations. TM

> *105.3.17* - A "Reclamation Treatments Map" for all proposed new areas will need to be provided. This map should be a version of the surface facilities map with additional layers/crosshatching to represent different reclamation treatments. The areas shown on this map should correspond with the areas/acreages used in calculating the reclamation cost estimate. (AAG)

The Reclamation Treatments map was provided to address this comment. Page three of the response indicates the acreage for each area is listed separately and included with the drawing. Page seven of this response indicates the total disturbed areas as: Shale Placement Area 1 - 67 acres, Shale Placement Area 2 - 43 acres expanding to a total of 120 acres. A total figure for the Quarry mining operations category shown on the map could not be found in this section of the text. An acreage for the facilities area was not found in this section of the text. A description of the specific reclamation treatments to be applied to the various areas indicated on this map could not be found. While this drawing shows disturbed area boundaries for these mine features, it does not differentiate between pit highwalls, pit floors, waste dump slopes, waste dump tops, or roads. The reclamation treatments map should include a breakdown into these types of areas to differentiate between the various reclamation treatments these areas will receive (i.e. different seed mixes, mulches, fertilizer treatments, topsoil replacement, etc.) and areas for which each variance from the reclamation standard is requested. This added detail will allow a more specific estimate/calculation of the cost of reclamation.

A table of the various types of mine features to be reclaimed and their respective acreages would help summarize the areas and reclamation treatments. An example table is provided below with some suggested headings. Please provide a similar table using headings which are appropriate for the type of disturbances at your mine site. AAG/LMK

FEATURE	TOTAL AREA (acres)	EXISTING	NEW	AREA TO BE RECLAIMED	AREA NOT RECLAIMED
access roads	3	1	2	3	0
shale slopes	6	1	5	3	3
shale flat areas	8	2	6	8	0
quarry floors	10	4	6	10	0
quarry highwalls	7	3	4	0	7
stockpiles & pads	12	6	6	12	0
processing facilities	4	4	0	4	0
offices	2	2	0	2	0
TOTALS	52	23	29	42	10

105.3.18 - The 1979 "Final Contour Map" #6057 does not provide final contours of Shale Area 1 and 2. Please provide a cross sectional drawing depicting the configuration of these areas after reclamation/regrading. Please show the location of these cross sections on the appropriate surface facilities map. (AAG)

The new drawing "Revised Final Contours" and associated cross sectional drawings have satisfied this comment.

105.4 Photographs

If recent copies are available, the use of Aerial photographs as seen in the mine office conference room, might be helpful to relate current disturbance and the area of future disturbance. (TM)

The Division suggested that aerial photographs could be used to relate current disturbance to future disturbance. Unfortunately, when the aerial photographs were reproduced and the topography was superposed on top of the reproduced copies, these plates became extremely difficult to read and interpret. The original computer block model used for plate AG-01 was much clearer and might be easier to modify to show this information. If the actual photographs had been used then perhaps this may have worked to show current disturbance, but the reproductions fail to clearly show current disturbance or the projected post-mining topography. Please provide a plate similar to AG-01 showing all the current disturbance and the location of future disturbance. TM

R647-4-106 - Operation Plan

106.2 Type of operations conducted, mining method, processing etc.

Chapter 4, section 4.2 of the submission does not make sense. Please clarify. Please provide a more detailed description of the mining methods, i.e. drilling and blasting pattern, blasting agent, cast blasting?, primary crusher, secondary crusher, mobile conveyor, main conveyor, on site processing, etc. Are there any deleterious or acid forming materials generated/exposed during operations? If not, please explain why. Section 4.3 of the submission refers to some modified blasting for the last few rows of the final highwall configuration. Please describe this modified blasting. Section 4.2.1 Phase 1 describes a phase of mining but contains no specific time period for this phase. Please provide an estimate of the length of time required for each of the mining phases. Section 4.2.4 mentions the "bridge" and later mentions that this is not included in the drawings. If this feature is part of the proposed plan please show the location and the footprint of the fill area for this bridge on the appropriate drawing. Page 4-3 of the submission mentions that no pits are currently proposed for backfilling. Is pit backfilling a possible option? Has this been evaluated? The Division encourages pit backfilling whenever possible. How will the waste material be placed? (end dumped by trucks, conveyor, compacted, etc.) Section 4.2 of the submission mentions that no topsoil exists. Please provide justification for this statement such as sampling attempts, etc. Section 4.3 of the submission mentions the runoff and sediment are controlled in the active quarry area. Please explain the means used to control runoff and sediment. What is the basis for the size of runoff and sediment control structures? (AAG)

A majority of the comments in this section have been addressed. Please provide additional information describing the attempt at a mixed soil to be used in reclamation of the permit revision areas. Please provide a description of the replacement soil proposed for use in the reclamation of the revision areas. Where will this replacement soil come from? AAG

106.3 Estimated acreages disturbed, reclaimed, annually.

The figures included in the plan show the creation of some significant valley fills in the waste disposal areas. What is the additional acreage proposed to be disturbed as part of the revision? What is the proposed acreage to be disturbed annually for this revision? Will any acreage be reclaimed annually? The amount of acreages disturbed on a life of mine basis at specific intervals is not clear. On page 3-1 of the plan it states that 220 acres of disturbed land exists currently and that 300 acres of additional disturbance will occur over the next eight years. On page 4-1, it states that 533 acres of additional phased disturbance will occur, making what appears to be 753 acreages of total disturbance. Please clarify these amounts of disturbance and relate all disturbed area numbers to specific figures or maps. (AAG)

This latest response in combination with the table requested under section 105.13.17 will address these comments. AAG

106.4 Nature of materials mined, waste and estimated tonnages

Please provide a description of the physical properties of the waste/overburden to be generated and an estimate of the annual tonnage to be produced. Table 4.3 of the submission lists tonnages of shale, but provides no timeframes for the amounts shown. (AAG)

Ash Grove's response has addressed most of these comments. Please describe typical particle sizes of shale material to be placed in the disposal areas and an estimate of the proportion of the sizes. AAG

106.5 Existing soil types, location, amount:

There is no soil data for the expansion area. While the existing permit identifies suitable soils in the area for reclamation, as per commitments in the reclamation plan, topsoil is being salvaged in the waste disposal areas (the amount of soil is not reported). An order 3 survey and soils map needs to be provided for the expansion area. If suitable soils exist, then an appropriate soil management plan will need to be developed. (LMK)

Ash Grove has provided results of an order 3 survey as requested. However, the operator states that "there is no reasonably recoverable suitable topsoil". A review of the survey indicates that soils in the proposed shale disposal areas would be suitable for reclamation even though they are shallow (4-6 inches). Even this amount can make a major difference in the success of revegetation.

It appears to be the intent of Ash Grove not to salvage topsoil. Before the Division can grant a variance for this, Ash Grove will need to provide a narrative justification as to why the existing soils cannot be salvaged. Otherwise, please provide a soils management plan describing the following: how soils will be salvaged, the volume to be salvaged, how the topsoil will be stockpiled and protected from further impacts, location of topsoil stockpiles, and how the topsoil will be utilized and respread upon final reclamation. (LMK)

106.6 Plan for protecting & redepositing soils:

From our site visit of May 2, 1995, it appeared that only limited amounts of soil material is available for salvage and redistribution (the Division does not expect Ash Grove to salvage topsoil in areas where it would be unsafe to operate equipment), the soils management plan will need to identify how topsoil will be protected (from wind/water erosion), location of any topsoil stockpiles, and how it will be redistributed for reclamation, including thickness of replaced soil. Direct haul and placement of soil on areas being concurrently reclaimed is an appropriate option to stockpiling. (LMK)

See comments under R647-4-106.5

106.7 Existing vegetation - species and amount:

The current permit contains limited vegetation data for three vegetation community types: Sagebrush, Browse-Shrub, and Pinyon-Juniper. This data consists of percent composition of the major species in each community based on production. Lacking from this data is vegetation cover levels which is used to establish revegetation success standards in accordance with Rule R-647-4-111. It will be necessary to obtain cover values from all plant community types that will be affected. A species list will also need to be generated for any new plant communities that exist within the expansion area. (LMK)

This information was provided. Vegetation cover is reported at 42%. Thus, the revegetation success standard will be 70% of this value, or 29%. (LMK)

106.8 Depth to groundwater, extent of overburden, geology

No information has been submitted regarding the use of groundwater other than that water rights and a well have been obtained to use for the operation. Location of the well should be shown on the appropriate resource map and a description of the aquifer from which the water is drawn included in the plan.

During the site visit on May 2, 1995, the operator mentioned the existence of some monitoring wells found adjacent to an old waste dump area and that this was being monitored by Martin Marietta. This area is found within the current permit area and as such the information on the construction of those wells and the monitoring data collected, would help provide some more information on the ground water in the area.

A copy of any groundwater permits and any additional information pertaining to groundwater resources in the area needs to be included as part of the mining and reclamation plan. (TM)

We recognize that a commitment to close all monitoring wells in accordance with State standards was made, but the Division would like to know Ashgrove's present intentions for monitoring and closure time, and into the future. Please provide a brief description regarding current status of the seven monitoring wells and future plans for their monitoring and closure. TM

106.9 Location & size of ore, waste, tailings, ponds

Drawing AG-01 of the submission includes an outline of the shale placement areas. Page 4-3 of the submission states the elevation of the shale placement area will be at 6040 feet. Using elevations shown on the drawing, this implies a vertical height of 40 feet is shale area 1 and a vertical height of 740 feet (6040 - 5300) for shale area 2. What is the proposed vertical height of these waste dumps?

These comments are adequately addressed in this response. We have noticed that the vertical height shown for the shale placement areas 1 and 2 are shown as 740 feet, and 230 feet, respectively, in the cross sections in Appendix C. Page 11 of this response indicates the maximum vertical height of these shale placement areas is 640 feet for both areas. Please clarify this conflicting information. AAG

During the inspection of May 2, 1995, Ash Grove staff mentioned that Martin Marietta remains responsible for a dump area within the current permit area. No record of this split ownership could be found in the Division files. Transfer documentation in the Division files do not exclude an area within the current permit from Ash Grove's responsibility. Recent discussions with the USFS staff indicate they have no documentation of this split responsibility either. Was this split ownership a part of the sales transaction between Ash Grove and Martin Marietta? Please provide some additional information describing the area which Ash Grove claims Martin Marietta is responsible for, and the nature of that responsibility. It is unlikely that the Division can recognize and sever this portion/parcel of reclamation liability from Ash Grove's permit under the present circumstances. (AAG)

Thank you for clarifying the reclamation responsibility of this dump area. AAG

R647-4-107 - Operation Practices

107.1.12 Disposal of trash, scrap, debris

Please describe how trash, scrap, and debris generated during the proposed operations will be disposed of. AAG

This latest response has addressed this comment. AAG

107.2 Drainages - Minimize environmental damage

The submission does not mention impacts to any drainages, although from the drawings it appears some drainages will be affected. Please describe any affected drainages and the proposed measures to mitigate affects/impacts to these drainages. (AAG)

Drawing #8-277D-1 in Appendix C shows the overall project area watershed boundary. Drawing #8-277D-2 shows the proposed drainage features in greater detail, however, this drawing does not show the entire permit area. Specifically, the areas not shown on this drawing are those portions which are south of section 33 T14S, R3W (coordinate line 445500) and west of the midline of section 33 (west of the conveyor corridor). Drawings similar to #8-277D-2 will need to be provided which cover the entire permit area and show existing and proposed drainage structures. Drawing #8-277D-2 is acceptable as one of these drawings. TM

The comment found in Appendix A is not adequate to demonstrate stability and erosion protection. It appears from the plan that there will be many long disturbed slopes in the waste disposal areas and as such erosion control does appear to be a issue. Please explain why erosion will be non-existent except for periods of great rainfall. Erosion was evident on dump slopes during our site visit on May 2, 1995. Does this assumption relate to final slope configuration, surface roughness, soil type, revegetation success, or considerations for land shaping? The current response is not adequate and more details must be supplied regarding final drainage configuration and erosion control considerations for waste dump areas and dump slopes. (TM)

Drawing No. 8-2770-1 is of such a large scale it is not appropriate to show drainage from the Shale placement areas or the quarry. Drawing AG-01 has a better scale (1'=400') and can show where riprap will be placed and how terraces will be implemented. The plans on how the Shale placement area No.1 will be constructed imply that only that conveyors will be used to place materials in 100 foot lifts. How will terraces be constructed on steep slopes when there will be no access to this site and the material will be conveyed~~ored~~ into the canyon? TM

107.3 Erosion control & sediment control

The operator has not supplied any information to assess the background erosion and sediment production based on site-specific or regional conditions. This may or may not be necessary based on the discussion and use of good engineering practices for erosion control in the final reclamation plan.

The final slopes are referenced in the old reclamation plan as no greater than 3.5:1. In Chapter 7 variances are requested to leave all reclaimed slopes at no greater than 2:1, and on the final contour map the waste disposal areas show 1.66:1 slopes. Please explain these inconsistencies. (TM)

The operator's latest response did not specifically address the issue regarding the inconsistencies of the steepness of the reclaimed slopes. Please provide a written response that will clarify these inconsistencies. TM

107.4 Deleterious material safety stored or removed

The operation of the facility and the mine must be discussed from the aspect of storage of deleterious materials. Please reference a Spill Prevention Control and Containment (SPCC) plan if one exists and discuss the handling and storage of deleterious materials found on site. (TM)

107.5 Suitable soils removed & stored:

Please refer to comments under R647-4-106.5 & 106.6. (LMK)

107.6 Concurrent reclamation:

Please describe plans for reclaiming areas no longer needed for mining operations. A description of revegetation test plots that have been implemented as well as any results should also be included. (LMK)

Ash Grove submittal (as well as during discussions with Division staff), mentions the use of vegetation test plots to determine how to 'make' a soil for reclamation. The revegetation seed mix would then be adjusted accordingly to demonstrate the revegetation success standard can be achieved. This is also discussed in light of the requested variances for salvaging topsoil. Before the Division can approve the topsoil handling variances, Ash Grove must submit details for the test plot program. At a minimum, the test plot design should include: types of soil, amendments/mulches to be used, variations in the seed mix, fertilizer type and application rates, test plot dimensions, etc.; timing (when will the test plots be implemented); location (show on a map); and how and when revegetation success will be evaluated.

It is our opinion that contemporaneous reclamation is very prudent. The operator will be able to try reclamation techniques and determine their success or failure on a small scale and adjust future projects on reclamation successes accordingly. In the current scenario of using the waste disposal area in the Canyon to the south of the current operation, it would be an appropriate consideration to reclaim each lift and its face as the waste disposal area was constructed. This methodology would allow the waste disposal area to be reclaimed as it was constructed and not have a long large slope at the end of disposal to reclaim all at once. The regrading and terracing of dump slopes and the routing of all road drainage away from the outslopes is an appropriate consideration as well. (TM)

The Division is still uncertain how the operator is going to terrace slopes and apply any kind of **mechanical** roughness etc. when there are no plans for equipment access to the shale placement areas. Please elaborate on how terracing and other slope stabilizing measures are going to be applied. TM

R647-4-108 - Hole Plugging Requirements

No information has been given regarding drill holes or the plugging of drill holes. This information must be supplied. All drill holes and water monitoring holes must be plugged according to applicable regulations. (TM)

Please refer to comments under section R647-4-106.8. TM

During the recent inspection Ash Grove staff pointed out some monitoring wells around the dump which Martin Marietta is still responsible for. The plugging and decommissioning of these wells will need to be addressed and included in the reclamation surety even though these wells are not part of the current revision proposal. (AAG)

This response has adequately addressed my comment. AAG

R647-4-109 - Impact Assessment

109.1 Impacts to surface & groundwater systems

Groundwater:

A general statement regarding groundwater is found in Appendix A:

"In the bottomland near the river, an aquifer has been located with water rights being established. Process water and domestic water will be acquired from the well in the general vinicity of coordinates 24,900N, 20,200E, which will be pumped to a tank for use as needed."

The permit should plot the location of all wells on the resource map requested and discuss the completion of any wells and final disposition of these wells upon reclamation. Also, are there any springs within the area of mining disturbance or reclamation?

Ash Grove has adequately addressed this section. TM

Surface Water:

The plan needs to show and discuss the reclamation of surface water drainages. It appears from the operation plan that Shale Area #1 will totally fill in what appears to be an emphermal drainage or create a valley fill. How will drainage traverse this valley fill and how will it be constructed. Crossing of the Canyon to the west, whether it will be a valley fill or a road along the ridge should be discussed in terms of its impact on surface water drainage.

The pit area will be a large flat area where surface drainage and final disposition of that drainage must be discussed and considered. The benches established with the final deposition of the Shale areas are also areas where some consideration to surface drainage may be appropriate, as well as, the final outslopes of the Shale waste disposal areas.

Will drainage still flow to the Sevier River in existing channels or will reclaimed channels be created across the plant site? (TM)

The operator needs to provide better figures to demonstrate some of the terracing methods and what is meant by "tie-ins" and accesses. One of the Divisions concerns is where will the drainage flow down the slopes of the Terraces once they are constructed. It is also stated that riprap, mulches, or fabrics may be used, but how can riprap be used on such steep slopes and how could it be placed when no mechanized equipment will access this area? TM

Section 5.1 of the submission states "All areas mined or disturbed by shale placement will be blended into surrounding area, as shown in drawing AG-01. The final shaping of the shale placement areas will be contoured to minimize any potential erosion." Please describe how these areas will be contoured and shaped to minimize erosion. What will the final slope configuration be? What will the final surface roughness be? The submission does not include any mention of drainage blockages. Please provide a description of the impacts to drainages as a result of this proposal. What measures are proposed to mitigate these impacts? (AAG)

The new cross sectional drawings of the shale placement areas in this response help answer these questions, however, the drawings show the final configurations as one continuous slope, while sections of the text in this response (page 16) describe these slopes as being terraced. Please clarify this conflicting information. AAG

109.2 Impacts to threatened & endangered wildlife/habitat:

Sections 5.4 and 5.5 of the submission state that no threatened and endangered plant or animal species will be impacted by this proposal. The original assessment of impacts to threatened and endangered species was conducted over 15 years ago. A current assessment needs to be provided which includes those species listed during the last 15 years. It is the Division's understanding that this assessment may be available through the Forest Service. If so, please make this information a part of the application under this section. (LMK)

Ash Grove has adequately addressed this section. (LMK)

109.3 Impacts on existing soils resources:

See comments under Rule R647-4-106.5 & 106.6. (LMK)

109.4 Slope stability, erosion control, air quality, safety

Section 5.6 of the submission states the "use of this equipment is virtually the most effective approach to enhancing air quality." Please describe the equipment referred to and how this equipment enhances air quality. (AAG)

This comment has been adequately addressed. Ash Grove's conversion from truck haulage to conveyor haulage is anticipated to greatly reduce fugitive dust by eliminating truck loading, truck traffic, and truck dumping. AAG

Please describe how public access to the (mine site/proposal area) is controlled and how this access will be restricted after final reclamation. Will there be a need to restrict public access above or immediately below the highwalls after final reclamation? If so, please identify the pertinent areas and describe how this will be accomplished. (AAG)

These comments have been adequately addressed on page 18 of the response. AAG

109.5 Actions to mitigate any impacts

Please provide a description of the measures proposed to mitigate the impacts listed above. (AAG)

This section has been adequately addressed. AAG

R647-4-110 - Reclamation Plan

The latest permit revision indicates that the reclamation plan is the same as for the current permit. Under the present rules, the reclamation plan in the current permit lacks sufficient detail and specificity. The information listed in this section of the rules will need to be provided for the proposed expansion area. (AAG)

110.1 Concurrent & post mining land use

What is the post mine land use for the proposed area? (AAG)

110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Please describe the manner and extent of the reclamation of the roads, highwalls, slopes, impoundments, drainages, pits, ponds, and piles included in this proposal. What is the final configuration of these features after final reclamation? (AAG)

The new drawing " Reclamation Treatments" fails to identify the planned reclamation activities. This drawing does show areas. This section of the response provides some additional description of final reclamation such as: (a) *All road building materials such as concrete and asphalt or any compacted gravels will be removed and the underlying soils will be scarified and subsequently planted.* (b) *Final highwalls and the quarry floor are proposed to be left as finally mined, with stable slopes as the result of currently mining activities. (c) Shale placement areas will be reclaimed as prior discussed with particular attention to erosion control of drainage courses and outslopes as prior discussed.* (i.e. *scarification of the terraced surfaces will be used if there is any crusting of the final surface prior to final reclamation planting to achieve an acceptable surface roughness which will allow successful plant growth*). (d) *Impoundments and drainages have been prior discussed, but in general, all structures will remain in place, with any roads of culverts or no-essential riprap removed, and potentially allow current vegetation to cover to become the permanent reclamation.* Please provide a description of the reclamation treatments proposed for each type of disturbance listed in the table requested in this letter under heading R647-4-105.3.17. AAG

110.3 Description of facilities to be left (post mining use)

According to section 6.2 of the submission, no surface facilities are proposed to remain after final reclamation under this proposal. This would include, but not be

limited to buildings, utilities, roads, pads, ponds, pits and surface equipment. If this is not accurate, please revise the permit application accordingly. (AAG)

This comment has been adequately addressed by Ash Grove. AAG

110.4 Description or treatment/disposition of deleterious or acid forming material

The submission does not mention any deleterious materials. Please explain why there are no such materials at this site. (AAG)

This comment has been adequately addressed by Ash Grove. AAG

110.5 Revegetation planting program:

The operator needs to provide details of the revegetation planting program. Specifically, what species will be planted and at what rates. It is recommended that a minimum of 10-12 different species of grasses, forbs and shrubs be included in each seed mix. Plans should be based on pre-mining vegetation communities, intended post mining landuse and results from any test plots. The Division can provide assistance in developing a seed mix(es) if requested. (LMK)

An acceptable revegetation seed mix has been provided. (LMK)

R647-4-111 - Reclamation Practices

1.14 Posting warning signs

The submission does not mention the posting of signs warning the public of any dangers or hazards. If this was not an oversight, then please justify the lack of these signs. (AAG)

This comment has been adequately addressed by Ash Grove. AAG

1.15 Constructing berms/fences above highwalls

The submission does not mention the creation or use of barriers, trenches, gates, etc., to prevent public access above the highwalls. Please explain why these features are not necessary to protect the public. AAG

This comment has been adequately addressed by Ash Grove. AAG

111.2 Reclamation of natural channels

2. Drainages - If natural channels have been affected by mining operations, then reclamation must be performed such that the channels will be left in a stable condition. Consideration for actual and reasonably expected water flow, so as to

avoid or minimize future damage to the hydrologic system, must be assessed and appropriate design plans developed.

The plan has not adequately addressed the final deposition of surface water drainage from the pit, the shale disposal areas, or drainage through the facility area.(TM)

See previous comments under section R647-4-105.3.15. TM

111.3 Erosion & sediment control

3. Erosion Control - Reclamation shall be conducted in a manner such that sediment from disturbed areas is adequately controlled. The degree of erosion control shall be appropriate for the site-specific and regional conditions of topography, soil, drainage, water quality or other characteristics.

Final erosion control plans have been based on statements like those found in Appendix A and Chapter 6. This not adequate as explained previously, because of the lack of specific details, in regards to what specific reclamation techniques will be used to stabilize slopes.

- "There is no erosion currently except during the 100-year storm."(Appendix A)
- "The shale and non-product material placement areas will be placed at near to the final contours as an operational plan.(please note : the operational plan shows 1.66:1 slopes) Only minimal shaping to assure any erosion control may be needed."(Chapter 6).

These statements may apply to current undisturbed lands, but may not be related to reclaimed soil materials and surfaces. Based on the fact that long reclaimed slopes will exist following reclamation, and materials of possibly different stability (green shale) will be found on the surface, more detailed information will be required on exactly what techniques will be used to control erosion on reclaimed surfaces (i.e. surface roughness, contouring, ripping, mulching, etc.). (TM)

How will these treatments be applied and where? TM

111.8 All roads & pads reclaimed

The final disposition of roads and pads is unclear. The operator needs to explain if any culverts or surface water conveyances will be left in place following reclamation and how those structures will be maintained.. Roads and associated compacted surfaces tend to provide the most surface runoff and as such should be deep ripped/roughened and reclaimed when no longer needed. (TM)

The operator explained that all pads and roads will be reclaimed and that all asphalt, etc. will be removed. This is appropriate but no where does it show what acreage is involved in removing these

roads or their location in regards to quarries, shale placement areas, etc. Please provide an estimate of the acreage to be affected under this category. TM

111.9 Dams & impoundments left self draining & stable

No dams or impoundments are proposed, but the existence of sediment ponds as part of the post mining land use might be appropriate, if they are sloped to provide safe access for wildlife, designed to be stable, etc. (TM)

As discussed earlier under section R647-4-105.3.15, the ponds which are left for final post-mining land use must be self maintaining, free-draining, etc. Otherwise, a variance must be requested which shows that the dams and impoundments will have sound hydrologic design and to be beneficial to the post mining land use. TM

111.12 Topsoil redistribution

Apparent conflicts in topsoil handling need to be resolved. Apparently, the original reclamation plan involved salvage and redistribution of topsoil. After stating that there is virtually no salvageable soil materials (page 6-1), it is stated that the original plan will be followed. Since variances for topsoil salvage or redistribution were never requested (or granted), it is assumed that these activities will take place. See also comments under Rule R647-4-106.5 & 106.6. (LMK)

Ash Grove's response to this (no salvagable topsoil and no vegetation cover) conflicts with the soil and vegetation survey results. As stated under R647-4-106.5, suitable soil exists in the shale placement areas (albeit shallow and a high gravel content) and vegetation is cover is reported at 42%. Ash Grove has not provided justification to grant a variance from salvaging these soils. (LMK)

The submission also states the revegetation plans is the same as the current permit. The existing permit calls for salvage of clay and silt from the shale disposal areas for use in reclamation. This is not mentioned in the latest submission. The existing permit states that the dump slopes will be less than 3 horizontal to 1 vertical. The latest revision states that the dump slopes will be approximately 30° (1.7h:1v). Please explain these inconsistencies. AAG

This comment has been adequately addressed by Ash Grove. Ash Grove explained that the old plan was referring to dump slopes for plant generated non-toxic materials placement, not shale placement areas (none were proposed under the old plan). AAG

R647-4-112 - Variance

The operator has requested variances to meeting the standards of Rules R-004 111-6 and 111-7. We have assumed this was a typo which should have read R647-4-111.6 (Slopes) and R647-4-111.7 (Highwalls) respectively. Section 7.2 of the plan states that "where possible, the final reclaimed slopes at the mine site would be no greater

than 2 horizontal to 1 vertical . . . which is stable for these materials . . .". If the operator can demonstrate that the reclaimed slopes are stable and will support vegetation at a 2H:1V slope angle, then perhaps a variance is not necessary. Please clarify. (LMK)

Ash Grove has adequately addressed this section.

Section 7 of the submission appears to request two variances from the same rule. The first request is unclear. The first request mentions final reclaimed slopes of 2H:1V. Division rules require highwalls to be at 45° (1H:1V), therefore, any highwalls which are of a lesser angle do not require a variance. The first variance request does not include a written description or map description of the area in question. The second variance request does not identify a specific area affected by this request. Please provide more details describing the historic highwall such as location, geology, proximity and similarity to the proposed highwall. How long has the historic highwall been in place? Please provide justification for extrapolating the conditions and stability of the historic highwall to the proposed highwall area. (AAG)

Please label the old quarry highwall areas and new highwall quarry areas on the Revised Base Map. Otherwise, this comment has been adequately addressed by Ash Grove. AAG

The submission contains no request for a topsoil variance, yet the proposal states there will be no topsoil salvage or replacement. Pursuant to our site visit of May 2, 1995, the operator will need to request a variance from salvaging topsoil on slopes that are too steep to safely operate equipment. These areas should be identified on a map. (LMK)

Ash Grove has now requested a variance from topsoil handling and has justified this variance claiming that there is no topsoil. As stated under R647-4-106-5, this is in conflict with the supplied soils survey information which states that there is 4-6 inches of topsoil. At this time, Ash Grove has not provided sufficient justification for a variance to salvage topsoil from the shale areas. Perhaps this material could be safely salvaged using a trackhoe? The track hoe would reach up on the slopes and pull the soil down as lifts are constructed (as discussed on pages 25 & 26). After the first lift is constructed, salvaged topsoil could be direct hauled to the face of the shale dumps. This would also increase the likelihood of successful revegetation of the shale dumps. LMK

In addition, the submission does not contain a request for a variance from revegetation, yet there are no plans for revegetating the pits, pit floors, highwalls, benches or roads. A request for a variance from the relevant rules will need to be included as part of the proposal. All variance requests should be formatted according to section R647-4-112 of the Minerals Rules. (AAG)

There is an apparent misunderstanding with regards to revegetation success standards for the current and proposed disturbances associated with this project and for which area(s) variances for revegetation and/or meeting the revegetatin success standard are requested, or are appropriate. For areas that are

currently disturbed, for which the percent of vegetation cover prior to mining is unknown, Division policy looks at the surrounding undisturbed vegetation to establish the success standard. The Natural Resources Conservation Service (NRCS) site examination identified the entire area to be in the Upland Stone Loam Range Site. Overall percent vegetation cover for this site is 42%. Therefore, unless a variance from meeting the 70% of pre-existing vegetation cover is granted for portions or all of the disturbance, the revegetation success standard would be a minimum of 29% vegetation cover (assuming this amount is adequate to control erosion). As requested and discussed in various locations in your latest submittal, the Division will grant variances to meeting the revegetation success standard and performing revegetation activities as described in the following table:

AREA	Requires revegetation	Vegetation Success Standard
Approved postmining pit highwalls	NO	None required
Quarry floor (solid rock outcrop areas)	NO	None required
Quarry floor (other than solid rock areas)	YES	20% Vegetation Cover*
Shale dump areas		29% Vegetation Cover**
Roads approved as part of postmining landuse	NO	None required
Roads (other than above)	YES	29% Vegetation Cover**
Other Areas	YES	29% Vegetation Cover**

* Variances for performing revegetation and meeting the 29% vegetation success standard approved for these areas, assuming runnoff/erosion is controlled.
** Variances for performing revegetation and meeting the 29% vegetation success standard not approved for these areas. (LMK)

R647-4-113 - Surety

The submission states "The currently proposed activities will change the amount of total work required for reclamation. It will not change the amount of reclaim work per acre as originally planned for." No description of the reclaim work per acre is included in the submission. Division records do not contain any details of the specific reclaim work in the original permit. The original reclamation surety estimate was prepared by the US Forest Service. They do not have any additional information regarding the specifics of the old surety amount. The old surety amount was recently adjusted by the Division for escalation only. The surety section in the submission contains no dollar amount, no disturbed acreage figure and no $/acre (dollar-per-acre) figure. It appears that Ash Grove proposes to post a total reclamation surety amount

based on extending the current average $/acre amount to the new acreage. No information has been provided justifying the extension of the average $/acre figure to the new area, such as feature ratios or percentages in new area compared to the current permit. Due to the lack of specific details such as acreages, volumes, reclamation treatments, etc., this surety proposal is unacceptable. This submission does not contain sufficient detail for the Division to calculate or verify a reclamation surety estimate. The information requested in this review will be needed in order to verify or calculate an estimate. (AAG)

Ash Grove's response states ... *"The new drawings* (i.e., Proposed Operations and Reclamation Treatments) *are proposed as the basis for the current bond verifications and future disturbed acreage calculations for bonding. The current acreage disturbed acreage based on the newly generated drawings totals 285 acres, which includes 13 acres for the combined facilities and 272 acres for existing and old quarry areas and site drainages. These acreages were established on the noted drawings to illustrate planned operations and to clarify the current and proposed bonding."*

This response did not contain an estimate of the cost of completing final reclamation. The initial submission combined with the information contained in this response does not provide sufficient detail for the Division to calculate or verify a reclamation surety estimate. The additional information requested in this review letter is needed in order to verify or calculate a reclamation estimate. (AAG)

The Division will suspend further review of the revised Notice of Intention until Ash Grove's response to this letter is received. If you have any questions in this regard please contact me, Tom Munson, Tony Gallegos, or Lynn Kunzler of the Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your patience and continued cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
cc: Gary Doolittle
Ted Fitzgerald, USFS, Fish Lake NF
M23-04r.rvw